

REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

The non-elected Claims 6-7 and 17-21 have been canceled without prejudice.

Applicants had previously explained that the invention is based upon the novel recognition of unexpectedly improved results in a high voltage treatment apparatus where a rod-like electrode has a diameter of not more than 1 mm. Evidence of the unexpectedly improved results may be found in Figure 4 which illustrates that in the case of pulsed power of 70kV (page 12, line 5), the field strength increased exponentially near the electrode surface for electrode diameters of 1 mm or 0.5 mm. Moreover, the actual field strength measured under simulated conditions, and represented by the curve indicated by “diamonds” in Fig. 8, increased at a substantially greater rate than was expected by simple calculation. That is, consistent with Figure 4, Figure 8 illustrates an unexpected physical mechanism which dramatically increases the field strength for small diameter electrodes (in this case, 0.25 mm).

Claims 2, 8 and 22-23 recite that the rod-shaped electrode has a diameter of not more than 1 mm. Moreover, Claim 1 recites that the electrodes are constituted so that a region whose field strength is raised to a value larger than 500 kV/cm is present in the vicinity of at least one electrode. Claim 22 further recites this feature in combination with the electrode diameter being not more than 1 mm, and Claim 23 yet further recites that the voltage is not more than 100 kV.

Claims 1-5, 8, 10-15 and 22-23 were rejected under 35 U.S.C. § 103 as being obvious over Locke et al “for reasons as of record.” Initially, applicants note that **this rejection is deficient on its face since Claims 8, 10, 11 and 22-23 had not previously been rejected under 35 U.S.C. § 103.** Thus the Examiner has not alleged that the claimed “rod shaped electrode whose diameter is not more than 1 mm” is present in Locke et al, nor has the

Examiner provided any basis or motivation for those skilled in the art to have modified Locke et al in accordance with these claims.

Claims 1-5 had previously been rejected under 35 U.S.C. § 103 as being obvious over Locke et al. The Examiner had alleged that the wire or hypodermic needle electrode of Locke et al” appears to lead one [of] ordinary skill in the art at the time the invention was made towards the range of the recited diameter in absence of evidence to the contrary.” However, as pointed out in the prior response, “evidence to the contrary” is present in the form of the unexpected improved results set forth in the specification. A *prima facie* case of obviousness can be overcome by the submission of objective evidence of nonobviousness. Such objective evidence of nonobviousness can include comparative data in the specification. In re Margolis, 228 USPQ 940 (Fed. Cir. 1986); M.P.E.P. § 716.01(a). Thus, to the extent that the Examiner is correct that the hypodermic needle or wire electrode in Locke et al. would lead one of ordinary skill in the art toward the claimed range, any resulting conclusion of obviousness is overcome by evidence of improved and unexpected results derived from the claimed invention. Here, as already discussed, providing a rod diameter of 1 mm or less produces a field strength which unexpectedly increases exponentially near the electrode surface, as compared to the substantially linear increases in field strength for larger diameter electrodes. This objective evidence of unobviousness found in the specification is unexpected from the prior art and overcomes any *prima facie* case of obviousness established by Locke et al.

In paragraph 5 of the Office Action, the Examiner states that the evidence of improved results in the specification is unpersuasive because “the manner of operating the device does not differentiate [an] apparatus claim from the prior art.” Applicants respectfully submit that this statement is not understood since the claims clearly recite a structural difference and the rejection is under 35 U.S.C. § 102 and not 35 U.S.C. § 103.

Concerning Claim 1, this claim recites a structural difference as compared to Locke et al., i.e., the pair of electrodes being “*constituted*” so that the field strength is greater than 500 kV/cm in the vicinity of at least one electrode. As illustrated in Figure 4, on the other hand, a construction having an electrode diameter of greater than 1 mm is unable to achieve this field strength. Since the construction of Locke et al., whose electrode diameter is greater than 1 mm, *cannot* achieve the claimed field strength, the recitation of a pair of electrodes constituted so that the field strength is greater than 500 kV/cm in the vicinity of at least one electrode defines a *structure* which excludes Locke et al..

Concerning the remaining claims, all of the remaining claims recite a “rod shaped electrode whose diameter is not more than 1 mm,” ***which is clearly a structural feature and which is not alleged to be present in Locke et al.*** Moreover, this structural difference provides unexpectedly improved results and has not been addressed by the blanket statement that “the manner of operating the device does not differentiate [an] apparatus claim from the prior art.” Applicants therefore respectfully submit that the outstanding rejection plainly fails to provide an adequate basis for ignoring this clear structural difference and its unexpected results, and solicit its withdrawal.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

Respectfully submitted,

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